

**COLONIAL STEEL CO.**



**HIGH GRADE  
STEEL**

**PITTSBURGH, PA.**



CATALOG No. 9

# COLONIAL STEEL COMPANY

MANUFACTURERS OF

CRUCIBLE AND HIGH GRADE  
OPEN-HEARTH STEEL



MAIN OFFICE

Keystone Building, 324 Fourth Ave.  
PITTSBURGH, PA.

HIGH GRADE TOOL STEEL OUR SPECIALTY



COLONIAL STEEL COMPANY, PITTSBURGH, PA.—WORKS AT COLONA, PA.  
MANUFACTURERS OF CRUCIBLE STEEL AND OPEN HEARTH STEEL

COLONIAL STEEL COMPANY

# COLONIAL STEEL Co.

MAIN OFFICE  
PITTSBURGH, PA.

WORKS AND MAIN WAREHOUSE  
COLONA, PA.

## BRANCH WAREHOUSES

NEW YORK	177-179 Hudson Street
BOSTON	84 High Street
PHILADELPHIA	512 Commerce Street
CHICAGO	201-203 E. Lake Street

## SALES OFFICES

DETROIT	1517 Ford Building
SAINT LOUIS	1511 Chemical Building
DENVER	24 Jacobson Building

J. B. FINLEY  
President

W. H. NIMICK  
Vice-President

T. H. CHILDS  
Treasurer

CHAS. M. BROWN  
Secretary

## COLONIAL STEEL COMPANY

### CRUCIBLE STEEL

The works of the Colonial Steel Company were built and put in operation in 1902 for the manufacture of tool steel. The crucible steel melting department comprises nine Siemens-Martin crucible melting furnaces, having a daily capacity of 72 tons of ingots. The finishing departments consist of bar mills for rolling sizes from  $\frac{1}{4}$ -inch to  $4\frac{1}{2}$ -inch sections, steam hammers capable of finishing bars from  $\frac{1}{4}$ -inch to 18-inch sections, sheet and plate mills.

The heating furnaces are especially built for slow and uniform heating of high carbon steel, and all the machinery arranged for careful hand work.

Careful inspection is made of all products, and no piece is allowed to leave the works until after it has been thoroughly tested.

The manufacture of high grade Tool Steel is our principal business.

### OPEN-HEARTH STEEL

Owing to the demand for better qualities of open hearth steel for agricultural tools and high grade machine parts, particularly alloy steels of various kinds, basic open hearth furnaces were added to the works in 1906. These furnaces were purposely built of medium capacity, so that the steel would be more homogeneous and thoroughly melted. In rolling and hammering, the bars are first heated and then finished, with the same care

## COLONIAL STEEL COMPANY

### OPEN HEARTH STEEL—Continued

and under the same restrictions as tool steel, and after finishing are subjected to a similar inspection.

The aim of the company is to produce the best open hearth steel possible.

We do not manufacture common soft steel bars or plates. For a list of our open hearth products see pages 24 and 25.

### SERVICE

Our facilities for prompt shipment are unsurpassed. Large stocks of all of our regular grades of Tool Steel, both annealed and unannealed, are carried in our warehouses in

NEW YORK

CHICAGO

BOSTON

PHILADELPHIA

The new warehouse at the works will have space for 1000 tons of steel, and our patrons are thus assured of prompt deliveries from the mill. A complete stock of all sizes of our standard grades will be ready for shipment on receipt of order.

### BOXING

Boxing and casing when required will be charged at cost.

### ORDERING

When ordering steel it is important to state the purpose for which it is to be used.

## COLONIAL HIGH SPEED STEEL

This steel is especially adapted for the heaviest cuts at the highest speeds.

It is the result of seven years' careful work and study by expert tool steel makers, and is now at the highest point in efficiency.

### FORGING

Heat slowly and thoroughly to a yellow heat and not further back than is necessary to form the tool. Do not work at a cold heat or lower than a cherry red, but if necessary, put back into the fire and reheat to make sure that the temperature is not lowered while forging. It must not be hammered cold. In grinding, give the tools as much backing as possible.

### HARDENING

Lathe and Planer Tools—Heat the tool slowly to a cherry red and then bring the cutting edge up rapidly to a white sweating heat. Plunge at once into oil. The more quickly the steel is cooled the better will be the results.

Finishing Tools—Heat the tool uniformly to as high a heat as possible without injuring the cutting edge or changing the shape, and cool at once in oil bath. Draw temper slowly until the tool assumes a light straw color.



## COLONIAL STEEL COMPANY

### COLONIAL HIGH SPEED STEEL Continued

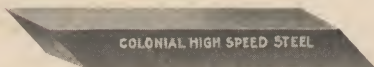
#### GRINDING

Grind on a dry stone. If ground on a wet stone, plenty of water should be used to prevent checking. Lathe tools should be ground very heavily at first and will be found to improve and to do better work after several grindings.

All our High Speed Steel is annealed unless otherwise specified.

### COLONIAL HIGH SPEED TREATED

HARDENED READY FOR USE  
TOOL HOLDER SIZES  
CUT TO ANY LENGTHS DESIRED



## **COLONIAL BEST TOOL STEEL**

### **WATER HARDENING STEEL**

This is an alloy steel and is expressly adapted for use where fine finishing cuts are required, such as forming tools, cutters, hobs, blanking dies, etc., and threading dies.

It is also suitable for all lathe and cutting tools where machines are not equipped to work at the very high speeds adapted to High Speed Steel. For a variety of purposes it will be found the most desirable steel to use.

### **TREATMENT**

Heat slowly and carefully to a dull red or approximately 1400° Fahr. Harden in water. Draw temper as required.

Forge with great care.

## **COLONIAL No. 7 TOOL STEEL**

This steel is made from the best iron obtainable and contains a slight proportion of alloy, added to give additional strength and toughness to a high temper steel.

It is especially suited for cutting tools of all kinds, drills, reamers, dies, taps, etc.

Its great toughness makes Colonial No. 7 the best steel for punches, dies of all kinds, and for pneumatic tools.

All bars carried in stock are annealed, except squares and octagons. Harden in water.

## COLONIAL SPECIAL TOOL STEEL

This is the very best grade of straight carbon tool steel manufactured. Nothing but iron is used for melting stock, and that iron the best that can be had, free from all impurities.

It is very low in phosphorous and in sulphur, making it exceedingly durable and not liable to break or crack in hardening.

It is suitable for tools of all kinds and for all purposes.

Furnished in the following tempers:

- A** This temper is only made for special requirements and for turning chilled rolls. A temper is not carried in stock.
- B** Standard Temper, suitable for all cutting tools, lathe and planer tools, drills, taps, reamers, cutters, dies, etc.
- C** Suitable for punches and for any cutting tool of very large size.
- D** Suitable for shear knives or hot forged work.
- E** Suitable for chisels, button sets, hot dies, etc.

## COLONIAL STEEL COMPANY

### RED STAR TOOL STEEL

A standard grade of Tool Steel for all ordinary purposes, made from a high grade of iron and finished with great care. In quality it surpasses any other carbon tool steel except our Colonial Special.

It is made in the following tempers:

- D** Standard Temper for this grade, suitable for cold working dies, headers, punches, axes, augers, mining drills, shear knives, etc.
  - E** Suitable for chisels, sledge hammers, picks, track chisels.
  - F** Suitable for tools for hot work.
- 

Temper letters are more or less arbitrary, and we sometimes make a variation in cases where conditions are well known to us and the purposes for which the steel is to be used indicate it.

### ANCHOR TOOL STEEL

A good grade of Tool Steel for ordinary purposes where a high grade is not necessary. For blacksmith work, hammers, sledges and hand chisels and similar tools, it gives excellent results, and for such purposes we recommend it.

## COLONIAL STEEL COMPANY

### RED STAR DRILL STEEL

Especially adapted and manufactured for drilling hard rock. It is used in all the mining camps of the United States, Canada and Mexico, and is everywhere giving the utmost satisfaction.

Octagon, Round and Cruciform or Rocky Mountain shapes.



We also make the following Tool Steels for special purposes:

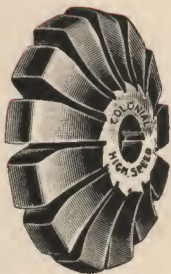
Colonial No. 10.	Colonial Tool M.
Colonial O B T.	Red Star Extra.
Colonial Superior.	Red Star Die.

### GUARANTEE

Any steel proving defective, when used for the purpose ordered, will be replaced, but no claims for labor or damages will be allowed.

All agreements contingent upon strikes, accidents, and other causes beyond our control. Prices subject to change without notice.

## HIGH SPEED STEEL CUTTER BLANKS



We carry in stock all sizes of Round Bars Annealed of High Speed Steel and are prepared to cut off or forge any size disc for prompt shipment.

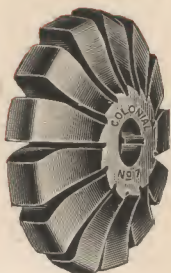
Colonial High Speed Steel is very uniform and is easily hardened in oil.

Colonial High Speed is the cheapest steel to use for cutters, because of its great durability and the long life of the cutters.

## ANNEALING

We make a specialty of annealing all our grades of tool steel, and have a separate department for this purpose. We can furnish the highest tempered steel annealed soft enough to be turned, drilled and milled with ease and uniformity.

## TOOL STEEL DISCS



WE CARRY IN STOCK and can furnish for prompt shipment all sizes of discs made from COLONIAL SPECIAL and COLONIAL No. 7 Tool Steel.

The Steel from which the Discs are made is of superior quality and has been very carefully annealed so as to machine readily, and is of suitable temper for Milling Cutters, Punches, Dies, Rolls, or any other purpose where a very tough, hard steel is required.

Best results are obtained by heating the Steel to a dark red and then cooling off in either fresh or salt water, in the usual manner. The temper should not be drawn so low as with ordinary grades of steel, as its freedom from impurities gives Colonial Special Tool Steel great toughness, so that it can be left hard.

Complete Price List of all sizes sent on application.



# COLONIAL STEEL COMPANY

## TOOL STEEL CLASSIFICATION

### ROUND, SQUARE, AND OCTAGON.

	Extra per lb.		Extra per lb.
$\frac{5}{8}$ to 2 in.	Base.	$9\frac{1}{8}$ to 10 in.	5.0c.
$2\frac{1}{8}$ " 3 "	1.0c.	$\frac{1}{8}$ " $\frac{1}{2}$ "	0.5c.
$3\frac{1}{8}$ " 4 "	1.5c.	$\frac{1}{8}$ " $\frac{3}{8}$ "	1.0c.
$4\frac{1}{8}$ " 5 "	2.0c.	$\frac{1}{8}$ and $1\frac{1}{2}$ in.	2.0c.
$5\frac{1}{8}$ " 6 "	2.5c.	$\frac{1}{4}$ " $\frac{3}{2}$ "	3.0c.
$6\frac{1}{8}$ " 7 "	3.0c.	$\frac{3}{8}$ in. special only,	5.0c.
$7\frac{1}{8}$ " 8 "	3.5c.	$\frac{5}{8}$ " " "	10.0c.
$8\frac{1}{8}$ " 9 "	4.0c.		
Hexagon	1 cent above price for octagon.		

### FLAT.

$\frac{5}{8}$  to 2 in. thick by  $\frac{9}{16}$  to 2 in wide ..... Base.

### FLAT.

	Extra per lb.		Extra per lb.
$\frac{1}{8}$ x $\frac{3}{8}$	20.0c.	$\frac{1}{8}$ x $\frac{3}{8}$ to $\frac{5}{8}$	1.5c.
$\frac{1}{8}$ x $\frac{1}{4}$	15.0c.	$\frac{1}{8}$ x $\frac{1}{8}$ " 8	1.0c.
$\frac{1}{8}$ x $\frac{5}{8}$	8.0c.	$\frac{3}{8}$ x $\frac{7}{8}$ " 8	1.0c.
$\frac{1}{8}$ x $\frac{3}{8}$	4.0c.	$\frac{1}{8}$ x $\frac{1}{2}$ " 8	1.0c.
$\frac{1}{8}$ x $\frac{7}{8}$ to $\frac{1}{2}$	3.0c.	$\frac{1}{2}$ x $\frac{9}{8}$ " 8	1.0c.
$\frac{1}{8}$ x $\frac{9}{8}$ " 7	2.0c.	$\frac{9}{8}$ x $2\frac{1}{8}$ " 8	1.0c.
$\frac{1}{8}$ x $7\frac{1}{8}$ " 8	3.0c.	$\frac{9}{8}$ to 2 in. x $\frac{5}{8}$ to 2 in.	0.0c.
$\frac{3}{8}$ x $\frac{1}{4}$	5.0c.	$\frac{5}{8}$ " 2 " x $2\frac{1}{8}$ " 7	1.0c.
$\frac{3}{8}$ x $\frac{5}{8}$	4.0c.	$\frac{5}{8}$ " $1\frac{3}{4}$ " x $7\frac{1}{8}$ " 8	1.0c.
$\frac{3}{8}$ x $\frac{3}{8}$	3.0c.	$1\frac{7}{8}$ " 2 " x $7\frac{1}{8}$ " 8	1.5c.
$\frac{3}{8}$ x $\frac{7}{8}$ to $\frac{5}{8}$	2.0c.	$2\frac{1}{8}$ " 3 " x $2\frac{1}{8}$ " 5	1.0c.
$\frac{3}{8}$ x $\frac{11}{8}$ " 2	1.5c.	$2\frac{1}{8}$ " 3 " x $5\frac{1}{8}$ " 8	1.5c.
$\frac{3}{8}$ x $2\frac{1}{8}$ " 7	1.0c.	$3\frac{1}{8}$ " 4 " x $3\frac{1}{8}$ " 6	1.5c.
$\frac{3}{8}$ x $7\frac{1}{8}$ " 8	2.0c.	$3\frac{1}{8}$ " 4 " x $6\frac{1}{8}$ " 8	2.0c.
$\frac{1}{4}$ x $\frac{5}{8}$ " $\frac{3}{8}$	2.0c.	$4\frac{1}{8}$ " 5 " x $4\frac{1}{8}$ " 7	2.0c.
$\frac{1}{4}$ x $\frac{7}{8}$ " $\frac{5}{8}$	1.5c.	$4\frac{1}{8}$ " 5 " x $7\frac{1}{8}$ " 8	2.5c.
$\frac{1}{4}$ x $\frac{11}{8}$ " 2	1.5c.	$5\frac{1}{8}$ " 6 " x $5\frac{1}{8}$ " 8	2.5c.
$\frac{1}{4}$ x $2\frac{1}{8}$ " 7	1.0c.	$6\frac{1}{8}$ " 7 " x $6\frac{1}{8}$ " 7	3.0c.
$\frac{1}{4}$ x $7\frac{1}{8}$ " 8	2.0c.	$6\frac{1}{8}$ " 8 " x $7\frac{1}{8}$ " 8	3.5c.

Annealing, extra, per lb. .... 1.0c.



# COLONIAL STEEL COMPANY

## CUTTING TO LENGTH

### CHARGES FOR CUTTING

To multiples or approximate lengths, 6 ft. or over .....	$\frac{1}{2}$ c	per lb.
To lengths 24 in. to 6 ft.....	$\frac{1}{2}$ c	"
To " 18 " to 24 in.....	1c	"
To " 12 $\frac{1}{8}$ " to 18 ".....	1 $\frac{1}{2}$ c	"
To " 6 $\frac{1}{8}$ " to 12 ".....	2c	"

## CLASSIFICATION TABLES

### CRUCIBLE SHEET AND SAW STEEL

Base sizes, per lb.

Best Sheet to 21 Ga.....		
2d Quality Sheet to 21 Ga.....		
3d " " 21 ".....		
Extras on lighter Gauge as follows:		
22 gauge.....	1c.	per lb. extra
23 ".....	2c.	" "
24 ".....	3c.	" "
25 ".....	4c.	" "
26 ".....	5c.	" "
27 ".....	6c.	" "
28 ".....	7c.	" "

### SPECIAL KNIFE BLADE SHEET STEEL

### CRUCIBLE CIRCULAR SAW PLATES

Extra Per lb.

To 46 in	diameter.....	Base
" 48 "	".....	1.0c
" 50 "	".....	2.0c
" 52 to 54 in.	".....	3.0c
" 56 " 60 "	".....	5.0c
" 62 " 64 "	".....	7.0c
" 66 " 70 "	".....	9.0c
" 72 in.	".....	11.0c

# COLONIAL STEEL COMPANY

## LIST OF COLONIAL TOOL STEEL DRILL RODS

Suitable for Twist Drills, Taps, Punches,  
Dental Tools, Reamers, Watch Parts,  
Electric Work, etc.

Size	Decimals	Price	Size	Decimals	Price	Size	Decimals	Price
1 1/2	1.5000	\$0.50	15-32	0.4687	\$0.60	F	0.2570	\$0.75
1 1/8	1.4687	.50	29-64	0.4531	.60	E	0.2500	.75
1 1/16	1.4375	.50	7-16	0.4375	.60	1-4	0.2500	.75
1 1/32	1.4062	.50	27-64	0.4218	.75	D	0.2460	.75
1 3/8	1.3750	.50	Z	0.4130	.75	C	0.2420	.75
1 1/4	1.3437	.50	13-32	0.4062	.75	B	0.2380	.75
1 5/16	1.3125	.50	Y	0.4040	.75	15 64	0.2343	.75
1 3/8	1.2812	.50	X	0.3970	.75	A	0.2340	.75
1 1/4	1.2500	.50	25-64	0.3906	.75	1	0.2270	.75
1 3/8	1.2187	.50	W	0.3860	.75	2	0.2190	.75
1 3/16	1.1875	.50	V	0.3770	.75	7-32	0.2187	.75
1 5/8	1.1562	.50	3-8	0.3750	.75	3	0.2120	.75
1 1/8	1.1250	.50	U	0.3680	.75	4	0.2070	.75
1 3/8	1.0937	.50	23-64	0.3593	.75	5	0.2040	.75
1 1/8	1.0625	.50	T	0.3580	.75	13-64	0.2031	.75
1 3/8	1.0312	.50	S	0.3480	.75	6	0.2010	.75
1	1.0000	.50	11-32	0.3437	.75	7	0.1990	.75
31-32	0.9687	.50	R	0.3390	.75	8	0.1970	.75
15-16	0.9375	.50	Q	0.3320	.75	9	0.1940	.75
29-32	0.9062	.50	21-64	0.3281	.75	10	0.1910	.75
7-8	0.8750	.50	P	0.3230	.75	11	0.1880	.75
27-32	0.8437	.50	O	0.3160	.75	3-16	0.1875	.75
13-16	0.8125	.50	5-16	0.3125	.75	12	0.1850	.75
25-32	0.7812	.50	N	0.3020	.75	13	0.1820	.75
3-4	0.7500	.55	19-64	0.2968	.75	14	0.1800	.75
23-32	0.7187	.55	M	0.2950	.75	15	0.1780	.75
11-16	0.6877	.55	L	0.2900	.75	16	0.1750	.83
21-32	0.6562	.55	9-32	0.2812	.75	17	0.1720	.83
5-8	0.6250	.55	K	0.2810	.75	11-64	0.1718	.83
19-32	0.5937	.55	J	0.2770	.75	18	0.1680	.83
9-16	0.5625	.55	I	0.2720	.75	19	0.1640	.83
17-32	0.5312	.55	H	0.2660	.75	20	0.1610	.83
1-2	0.5000	.60	17-64	0.2656	.75	21	0.1570	.83
31-64	0.4843	.60	G	0.2610	.75	5-32	0.1562	.83

# COLONIAL STEEL COMPANY

## DRILL RODS—Continued

Size	Decimals	Price	Size	Decimals	Price	Size	Decimals	Price
22	0.1550	\$0.83	3-32	0.0937	\$1.05	61	0.0380	\$2.40
23	0.1530	.83	42	0.0920	1.05	62	0.0370	2.40
24	0.1510	.83	43	0.0880	1.05	63	0.0360	2.70
25	0.1480	.83	44	0.0850	1.05	64	0.0350	2.70
26	0.1460	.83	45	0.0810	1.05	65	0.0330	2.70
27	0.1430	.83	46	0.0790	1.05	66	0.0320	3.00
9-64	0.1406	.83	5-64	0.0781	1.20	1-32	0.0312	3.00
28	0.1390	.83	47	0.0770	1.20	67	0.0310	3.00
29	0.1340	.83	48	0.0750	1.20	68	0.0300	3.00
30	0.1270	.83	49	0.0720	1.20	69	0.0290	3.30
1-8	0.1250	.83	50	0.0690	1.20	70	0.0270	3.30
31	0.1200	.90	51	0.0660	1.45	71	0.0260	3.60
32	0.1150	.90	52	0.0630	1.45	72	0.0240	3.60
33	0.1120	.90	1-16	0.0625	1.45	73	0.0230	3.60
34	0.1100	.90	53	0.0580	1.45	74	0.0220	3.90
7-64	0.1093	.90	54	0.0550	1.45	75	0.0200	4.05
35	0.1080	.90	55	0.0500	1.80	76	0.0180	4.20
36	0.1060	.90	3-64	0.0468	1.80	77	0.0160	4.50
37	0.1030	.90	56	0.0450	1.80	1-64	0.0156	4.50
38	0.1010	.90	57	0.0420	1.80	78	0.0150	4.80
39	0.0990	1.05	58	0.0410	2.10	79	0.0140	5.10
40	0.0970	1.05	59	0.0400	2.10	80	0.0130	5.40
41	0.0950	1.05	60	0.0390	2.10			

The above sizes carried in stock in 3-foot lengths.

Square and other shapes made to order.

# COLONIAL STEEL COMPANY

## CLASSIFICATION TABLES

### CRUCIBLE SPRING STEEL

										Extra per lb.
1 1/4 to 6	in.	x	No. 4 gauge and thicker	..	Base					
1	" 1 1/8	"	x	" 1	" to 4 gauge, inc.	0.2c				
1	" 3	"	x	" 5	" " 7	"	"	0.5c		
3/4 and 1 1/8	"	x	" 1	"	" 7	"	"	0.5c		
3/8 to 1 1/8	"	x	" 1	"	" 7	"	"	1.0c		
3/4	" 3	"	x	" 8	" " 10	"	"	1.0c		
3/4	" 3	"	x	" 1/8 in.	" 16	"	"	1.5c		
3/4	" 3	"	x	" 17 ga.	" 20	"	"	2.2c		
3/8	" 5/8	"	x	" 8	" " 10	"	"	4.0c		
1/2	" 5/8	"	x	" 11	" " 20	"	"	5.0c		

Cutting to lengths, 24 in. and over,  $\frac{2}{10}$ c. per lb. extra; under 24 in., according to special contract, but not less than  $\frac{1}{4}$ c.

### Round and Square

										Extra per lb.
5/8 to 1 1/2	in.	.....								Base
1/2	" 9/16	"	.....							0.2c
3/8	" 7/16	"	.....							0.5c
5/16			.....							1.0c
1/4			.....							1.5c

Cut to lengths, 24 in. and over,  $\frac{2}{10}$ c. per lb. extra; under 24 in., according to contract, but not less than  $\frac{2}{10}$ c. per lb.

### OPEN HEARTH SPRING

Same classification as Crucible.

## NICKEL STEEL

This is one of our specialties. Colonial Nickel Steel is made in small furnaces and carefully worked to insure an even and regular distribution of the nickel.

Bars are hand rolled, or forged under the hammer. We are prepared to guarantee Nickel Steel free from pipes and surface cracks.

We furnish three tempers in 3½ % Nickel Steel.

No. 1 temper .....	Carbon .12 to .19
No. 2    "       .....	"    .20 to .29
No. 3    "       .....	"    .30 to .40

Other elements for all three tempers.

Manganese.....	.60 to .90
Phosphorous, not over.....	.025
Sulphur       "    " .....	.030
Nickel.....	3% to 3½ %

## NICKEL STEEL PLATES AND SHEETS

### NICKEL STEEL BILLETS

For forging purposes, same quality and tempers as above, in sizes 1¼-inch square to 8-inch square, or slabs of equivalent area.

### NICKEL STEEL FORGINGS

#### 30% NICKEL STEEL

Anti-corroding, for valve stems and similar purposes, made by the crucible process.

Carbon .....	.30 to .40
--------------	------------

All sizes furnished.

## COLONIAL STEEL COMPANY

### SHEET STEEL

For tools and cutting knives of all kinds, springs, agricultural implements, etc.

Highly polished or planished surface if desired.

Section Steel.

Guard Plate.

Saw Steel.

Cross Cut Saws.

Circular Saw Plates.

Shovel Steel.

Spring Steel.

Scraper Plates.

### AUTOMOBILE FRAME SHEETS

#### 5 PLY JAIL BARS



#### 5 PLY SAFE PLATES

##### Sizes Rolled

Thickness	Width		Length	
$\frac{1}{4}$ -inch	x 60-inch	x 120-inch	to 144-inch	
$\frac{5}{16}$ "	x 60 "	x 120 "	" 144 "	
$\frac{3}{8}$ "	x 60 "	x 120 "	" 144 "	
$\frac{7}{16}$ "	x 60 "	x 120 "	" 144 "	
$\frac{1}{2}$ "	x 60 "	x 96 "	" 108 "	
$\frac{5}{8}$ "	x 60 "	x 96 "	" 108 "	
$\frac{3}{4}$ "	x 50 "	x 96 "	" 108 "	
$\frac{7}{8}$ "	x 50 "	x 84 "	" 96 "	
1 "	x 50 "	x 60 "	" 72 "	
$1\frac{1}{4}$ "	x 50 "	x 60 "	" 72 "	



## SOFT CENTER PLOW STEEL

Our Soft Center, or 3 Ply, Plow Steel is now made in two qualities. The best grade is made by the Crucible process, which gives a more uniform and higher quality of steel. This is known as our "Standard Crucible" brand.

By the Open Hearth process we make a cheaper grade known as "Beaver" brand Soft Center Steel. This is manufactured from selected iron with great care, to insure as uniform a product as possible, and one that will take a highly polished surface.

Our center plates are entirely of our own make, so that we can depend on their being homogeneous and of the proper strength and toughness. Each heat is carefully tested before being placed in the ingot moulds.

### CLASSIFICATION

Slabs .....	Base			
Mouldboards, Regular.....	0.50c	Extra per lb.		
"    Breaker.....	0.75c	"	"	"
Shares, Parallel.....	0.50c	"	"	"
"    Not Parallel .....	0.75c	"	"	"
"    Lister Solid.....	0.50c	"	"	"
"    Lister V, cut out..	1.75c	"	"	"
"    Horned.....	1.25c	"	"	"
Shovels .....	0.50c	"	"	"
Land Sides.....	0.25c	"	"	"

## SOLID PLOW STEEL

In slabs and cuts to patterns.

Prices on application.

# COLONIAL STEEL COMPANY

## FILE STEEL

Extra Per lb.

Square, Half Round, Round and Flat Bastard, Cabinet, Mill Saw, Horse and Shoe Rasp, 8 inch and over....	}	Base
---	---	------

Knife, Slitting Cross, Tumbler, Sad- dle Tree, Rasp, Oval, Cant, Feath- eredge, Shoe, Roller, Gin Saw, Pit Saw, Cross-cut (except "Great American") 8 inch and over.....	}	3c
--	---	----

Great American Cross-Cut, 8 in. and over ..2c

All Special Shapes not otherwise pro- vided for, 8 inch and over.....	}	3½c
--	---	-----

Extras for all File and Rasp Steel,  
except Taper.

7½	7	6½	6	5½	5	4½	4	3½	3	inch.
½	1	1½	2	2½	3	3½	4	4½	5c	per lb.

Regular Taper File, 4 inch and over.....2c

Extra for Regular Taper:

3½	3	inch
1	4c	per lb.

Slim Taper, 6 inch and over .....2c

Extra for Slim Taper:

5½	5	4½	4	3½	inch.
½	1	2½	4	6½c	per lb.



# COLONIAL STEEL COMPANY

## FILE STEEL SIZES

		Sq. and Rnd.	Flat	Mill	Taper	Half Round
2	in.	.075	.240x060	.240x045	.134	.240x069
2½	"	.094	.280x072	.288x054	.167	.288x082
3	"	.113	.335x084	.335x063	.234	.336x096
3½	"	.131	.384x096	.384x072	.302	.383x109
4	"	.150	.430x107	.430x081	.369	.431x123
4½	"	.169	.478x119	.478x089	.402	.479x137
5	"	.188	.525x131	.525x098	.436	.527x151
5½	"	.206	.573x143	.573x107	.470	.574x164
6	"	.225	.620x155	.620x116	.503	.622x178
6½	"	...	.668x167	.....	.....	.....
7	"	.263	.715x179	.715x134	.570	.718x205
8	"	.300	.810x202	.810x152	.638	.813x232
9	"	.338	.905x226	.905x170	.705	.909x260
10	"	.375	1.000x250	1.000x187	.772	1.004x287
11	"	.438	1.090x272	1.090x204	.839	1.100x314
12	"	.500	1.180x295	1.180x221	.906	1.195x341
13	"	.563	1.270x317	1.270x238	.973	1.291x369
14	"	.625	1.360x340	1.360x255	1.041	1.387x396
15	"	.688	1.450x362	1.450x272	1.108	1.482x423
16	"	.750	1.540x385	1.540x289	1.175	1.578x451
17	"	.813	1.630x407	1.630x306	.....	1.673x478
18	"	.875	1.720x430	1.720x322	.....	1.769x505
19	"	.938	1.810x452	.....	.....	1.864x533
20	"	1.000	1.900x475	.....	.....	1.960x560
21	"	1.063	.....	.....	.....	.....
22	"	1.125	.....	.....	.....	.....
23	"	1.188	.....	.....	.....	.....
24	"	1.250	.....	.....	.....	.....

## MISCELLANEOUS STEELS

AXE STEEL,

In Flat and Overcoat Shapes.

AGRICULTURAL PUNCH AND  
CHISEL STEEL.

AUGER BIT STEEL.

BIT AND JAR STEEL.

BUSH HAMMER STEEL.

CHROME NICKEL STEEL.

COAL AUGER STEEL.

DIE BLOCKS.

DISCS.

FORGINGS.

In the Rough or Rough Turned.

FORK STEEL.

GRANITE AND COAL WEDGE  
STEEL.

HATCHET STEEL.

HOE STEEL.

HAMMER STEEL.

ICE PLOW STEEL.

MATTOCK STEEL.

MINING DRILL STEEL.

NAIL DIE SHAPES.

PICK STEEL.

PIKE AND CANT HOOK STEEL.

PENE HAMMER.

SAW TOOTH STEEL.

## COLONIAL STEEL COMPANY

### MISCELLANEOUS STEELS

Continued

SLEDGE STEEL.

SMELTER BAR STEEL.

SPINDLE STEEL.

SET SCREW, CRUCIBLE.

SET SCREW, OPEN HEARTH.

SHEAR STEEL.

ROAD SCRAPER STEEL.

Cut to Shape.

ROLLER STEEL.

---

CRUCIBLE AND OPEN HEARTH STEEL  
OF EVERY DESCRIPTION

---

### DIE BLOCKS

We make a specialty of Die Blocks for drop forging work.

Extras on Die Blocks.

Weighing above 25 lbs.	.....	2c per lb. extra		
" 15 to 25 "	.....	3c	"	"
" 10 to 15 "	.....	5c	"	"
" 7½ to 10 "	.....	7c	"	"
" 5 to 7½ "	.....	8c	"	"
" 3 to 5 "	...	9c	"	"
" 2 to 3 "	.....	11c	"	"
" 1 to 2 "	.....	12c	"	"
" under 1 lb.	flat price 25c each.			

# COLONIAL STEEL COMPANY

## CLASSIFICATION TABLES OPEN HEARTH MACHINERY STEEL

### Rounds and Squares

		Per 100 lbs.
$\frac{3}{4}$ to 3	inches.....	Base
$\frac{5}{8}$ to $\frac{11}{16}$	inch .....	\$ .10 extra
$\frac{1}{2}$ to $\frac{9}{16}$	" .....	.20 "
$\frac{7}{16}$	" .....	.40 "
$\frac{3}{8}$	" .....	.50 "
$\frac{5}{16}$	" .....	.70 "
$\frac{1}{4}$ and $\frac{9}{32}$	" .....	1.00 "
$3\frac{1}{16}$ to $3\frac{1}{2}$	inches.....	.15 "
$3\frac{1}{16}$ to 4	" .....	.25 "
$4\frac{1}{16}$ to $4\frac{1}{2}$	" .....	.30 "
$4\frac{9}{16}$ to 5	" .....	.40 "
$5\frac{1}{8}$ to $5\frac{1}{2}$	" .....	.50 "
$5\frac{3}{8}$ to 6	" .....	.75 "

### Flat Bars and Heavy Bands

		Per 100 lbs.
1 to 6	inches x $\frac{3}{8}$ to 1 inch..	Base
1 to 6	" x $\frac{1}{4}$ and $\frac{5}{16}$ ..	\$ .20 extra
$1\frac{1}{8}$ to 6	" x $1\frac{1}{16}$ to $1\frac{3}{16}$ ..	.10 "
$1\frac{1}{8}$ to 6	" x $1\frac{1}{4}$ to $1\frac{1}{2}$ ..	.20 "
$1\frac{3}{4}$ to 6	" x $1\frac{5}{8}$ to $2\frac{3}{4}$ ..	.30 "
$1\frac{1}{2}$ to 6	" x 7g to $\frac{3}{16}$ ..	.40 "
1 to $1\frac{7}{16}$	" x 7g to $\frac{3}{16}$ ..	.50 "
6 to 8	" x $\frac{3}{8}$ to 1 ..	.20 "
6 to 8	" x $\frac{1}{4}$ to $\frac{5}{16}$ ..	.40 "
6 to 8	" x $\frac{3}{16}$ to 4g ..	.60 "

For intermediate sizes, the next higher extra to be charged in all cases.

### Hexagons and Octagons

	Per 100 lbs.
$\frac{3}{4}$ inch and larger.....	\$ .30 extra
$\frac{5}{8}$ and $\frac{11}{16}$ inch .....	.50 "
$\frac{1}{2}$ and $\frac{9}{16}$ " .....	.70 "
$\frac{7}{16}$ inch .....	1.10 "
$\frac{3}{8}$ inch .....	1.30 "

For intermediate sizes, the next higher extra to be charged in all cases.

# COLONIAL STEEL COMPANY

## CLASSIFICATION TABLES—Continued OPEN HEARTH MACHINERY STEEL

### Light Bars and Bands

1½	to	6	in.	x	Nos. 7, 8, 9	Ga. and ⅜	in....	\$ .40	extra
1½	to	6	"	x	" 10, 11, 12	" and ⅜	in....	.60	"
1	to	1⅞	"	x	" 7, 8, 9	" and ⅜	in....	.50	"
1	to	1⅞	"	x	" 10, 11, 12	" and ⅜	in....	.70	"
1⅜	to	1⅞	"	x	" 7, 8, 9	" and ⅜	in....	.70	"
1⅜	to	1⅞	"	x	" 10, 11, 12	" and ⅜	in....	.80	"
1⅜	to	1⅞	"	x	" 7, 8, 9	" and ⅜	in....	1.00	"
1⅜	to	1⅞	"	x	" 10, 11, 12	" and ⅜	in....	1.20	"
1⅜	to	1⅞	"	x	" 7, 8, 9	" and ⅜	in....	1.20	"
1⅜	to	1⅞	"	x	" 10, 11, 12	" and ⅜	in....	1.30	"
1½	to	1⅞	"	x	" 7, 8, 9	" and ⅜	in....	1.30	"
1½	to	1⅞	"	x	" 10, 11, 12	" and ⅜	in....	1.50	"
1⅞	to	1⅞	"	x	" 7, 8, 9	" and ⅜	in....	1.80	"
1⅞	to	1⅞	"	x	" 10, 11, 12	" and ⅜	in....	2.10	"
1⅞	to	1⅞	"	x	" 7, 8, 9	" and ⅜	in....	1.90	"
1⅞	to	1⅞	"	x	" 10, 11, 12	" and ⅜	in....	2.40	"

For intermediate sizes, the next higher extra to be charged in all cases.

### Quantity Differentials

All specifications for less than 2000 lbs. of a size will be subject to the following extras, the total weight of a size ordered to determine the extra, regardless of lengths, and regardless of exact quantity actually shipped.

Quantities less than 2000 lbs.,

but not less than 1000 lbs.....\$ .30 per 100 lbs.

Quantities less than 1000 lbs..... .70 " "

. All sizes not enumerated, subject to special arrangement.

### Extras for Cutting to Specified Lengths

	Per 100 lbs.
Hot Sawing or Shearing, 24 in. and longer bars.....	\$ .10
Hot Sawing or Shearing, 12 to 24 inches.....	.20
Machine Cutting, Specified Lengths, above 24 inches.....	.20
Machine Cutting, Specified Lengths, 12 to 24 inches.....	.40

Machine Cutting to Specified Lengths, less than 12 inches, according to contract, but not less than 60c on each size.

No charge for Shear Cutting to multiple lengths of 12 inches and under.

No extra charge for Shearing to lengths of 5 feet and over.

# COLONIAL STEEL COMPANY

## TABLES FOR COMPUTING WEIGHT OF CAST STEEL

Weight in lbs. of a Lineal Foot of Round,  
Square, and Octagon Steel.

Size in Inches	Round	Octa- gon	Square	Size in Inches	Round	Octa- gon	Square
$\frac{1}{16}$	.010	.011	.013	$2\frac{1}{2}$	16.79	17.71	21.37
$\frac{1}{8}$	.042	.044	.053	$2\frac{5}{8}$	18.51	19.52	23.56
$\frac{3}{16}$	.094	.099	.120	$2\frac{3}{4}$	20.31	21.42	25.86
$\frac{1}{4}$	.168	.177	.214	$2\frac{7}{8}$	22.20	23.41	28.27
$\frac{5}{16}$	.262	.277	.334	3	24.17	25.50	30.78
$\frac{3}{8}$	.378	.398	.481	$3\frac{1}{8}$	26.23	27.66	33.40
$\frac{7}{16}$	.514	.542	.655	$3\frac{1}{4}$	28.37	29.92	36.12
$\frac{1}{2}$	.671	.708	.855	$3\frac{3}{8}$	30.59	32.27	38.95
$\frac{9}{16}$	.850	.896	1.082	$3\frac{1}{2}$	32.90	34.70	41.89
$\frac{5}{8}$	1.049	1.107	1.336	$3\frac{5}{8}$	35.29	37.23	44.94
$\frac{11}{16}$	1.270	1.339	1.616	$3\frac{3}{4}$	37.77	39.84	48.09
$\frac{3}{4}$	1.511	1.594	1.924	$3\frac{7}{8}$	40.33	42.54	51.35
$\frac{13}{16}$	1.773	1.870	2.258	4	42.97	45.33	54.72
$\frac{7}{8}$	2.056	2.169	2.618	$4\frac{1}{4}$	48.51	51.17	61.77
$\frac{15}{16}$	2.361	2.490	3.006	$4\frac{1}{2}$	54.39	57.37	69.25
1	2.686	2.833	3.420	$4\frac{3}{4}$	60.60	63.92	77.16
$1\frac{1}{8}$	3.399	3.585	4.328	5	67.15	70.83	85.50
$1\frac{1}{4}$	4.197	4.427	5.344	$5\frac{1}{4}$	74.03	78.08	94.26
$1\frac{3}{8}$	5.078	5.356	6.466	$5\frac{1}{2}$	81.25	85.70	103.45
$1\frac{1}{2}$	6.044	6.374	7.695	$5\frac{3}{4}$	88.80	93.67	113.07
$1\frac{5}{8}$	7.093	7.481	9.031	6	96.69	101.99	123.12
$1\frac{3}{4}$	8.226	8.674	10.474	7	131.61	138.82	167.58
$1\frac{7}{8}$	9.443	9.960	12.023	8	171.90	181.32	218.88
2	10.744	11.332	13.680	9	217.57	229.48	277.02
$2\frac{1}{8}$	12.129	12.793	15.443	10	268.60	283.31	342.00
$2\frac{1}{4}$	13.598	14.343	17.314	11	325.01	342.80	413.82
$2\frac{3}{8}$	15.151	15.981	19.291	12	386.79	407.97	492.48

Multiply above weights by 1.125 for High Speed Steel; by .933 for wrought iron; by .918 for cast iron; by 1.0331 for brass; by 1.1209 for copper



# COLONIAL STEEL COMPANY

## WEIGHT OF FLAT BAR STEEL, PER FOOT

	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{7}{8}$	1	$1\frac{1}{8}$	$1\frac{1}{4}$	$1\frac{3}{8}$	$1\frac{1}{2}$	$1\frac{3}{4}$	2	$2\frac{1}{4}$	$2\frac{1}{2}$	$2\frac{3}{4}$	3	$3\frac{1}{2}$	4	5	6
$\frac{1}{8}$	.213	.266	.320	.372	.426	.479	.530	.585	.640	.745	.850	.955	1.07	1.28	1.49	1.70	2.13	2.56
$\frac{3}{16}$	.319	.399	.480	.558	.639	.718	.790	.878	.960	1.12	1.28	1.43	1.60	1.92	2.24	2.55	3.20	3.83
$\frac{1}{4}$	.425	.533	.640	.743	.852	.958	1.06	1.17	1.28	1.49	1.70	1.91	2.13	2.56	2.98	3.40	4.26	5.11
$\frac{5}{16}$	.531	.665	.800	.929	1.06	1.20	1.33	1.46	1.60	1.86	2.13	2.39	2.66	3.19	3.72	4.25	5.32	6.38
$\frac{3}{8}$	.638	.798	.960	1.12	1.28	1.43	1.59	1.75	1.91	2.23	2.55	2.87	3.20	3.83	4.46	5.10	6.40	7.66
$\frac{7}{16}$	.744	.931	1.12	1.30	1.49	1.67	1.86	2.05	2.23	2.60	2.98	3.35	3.72	4.46	5.21	5.95	7.44	8.92
$\frac{1}{2}$	....	1.07	1.28	1.49	1.70	1.91	2.13	2.34	2.55	2.98	3.40	3.83	4.26	5.10	5.96	6.80	8.52	10.20
$\frac{9}{16}$	....	1.20	1.44	1.67	1.91	2.15	2.39	2.63	2.87	3.35	3.83	4.30	4.78	5.74	6.69	7.65	9.56	11.50
$\frac{5}{8}$	....	....	1.60	1.86	2.12	2.39	2.66	2.92	3.19	3.72	4.26	4.79	5.32	6.39	7.44	8.52	10.64	12.78
$\frac{11}{16}$	....	....	1.76	2.04	2.34	2.63	2.92	3.22	3.51	4.09	4.68	5.26	5.84	7.01	8.18	9.35	11.70	14.00
$\frac{3}{4}$	....	....	....	2.23	2.55	2.86	3.19	3.50	3.83	4.46	5.10	5.74	6.40	7.65	8.92	10.20	12.80	15.30
$\frac{13}{16}$	....	....	....	2.41	2.76	3.11	3.45	3.80	4.14	4.83	5.53	6.22	6.91	8.29	9.67	11.10	13.80	16.60
$\frac{7}{8}$	....	....	....	2.98	3.34	3.72	4.09	4.46	5.21	5.96	6.70	7.46	8.19	9.94	10.42	11.92	14.92	17.88
$1\frac{1}{8}$	....	....	....	3.19	3.59	3.98	4.38	4.78	5.58	6.38	7.17	7.97	8.77	10.20	11.20	12.80	15.90	19.10
1	....	....	....	....	3.82	4.25	4.68	5.10	5.96	6.80	7.66	8.52	9.36	10.20	11.92	13.60	17.04	20.40
$1\frac{1}{8}$	....	....	....	....	....	4.78	5.27	5.74	6.71	7.65	8.61	9.59	10.54	11.48	13.41	15.30	19.17	22.95
$1\frac{1}{4}$	....	....	....	....	....	....	5.85	6.38	7.45	8.50	9.57	10.65	11.71	12.76	14.90	17.00	21.30	25.61
$1\frac{1}{2}$	....	....	....	....	....	....	7.02	7.67	8.94	10.20	11.49	12.78	14.04	15.30	17.88	20.40	25.56	30.60

COLONIAL STEEL COMPANY

AVERAGE WEIGHT OF  
CIRCULAR SAW PLATES

Diam.	GAUGE									
	5	6	7	8	9	10	11	12	13	14
12	....	....	....	....	....	....	....	4	3 $\frac{1}{2}$	3
14	....	....	....	....	....	....	....	6	5	3 $\frac{1}{2}$
16	....	....	....	....	9	8	7	6 $\frac{1}{2}$	5 $\frac{3}{4}$	4 $\frac{1}{2}$
18	....	....	....	12	11	10	9	8	7	6
20	....	....	....	14	13	12	11	9	....	....
22	....	....	....	17	15 $\frac{1}{2}$	14	13	12	....	....
24	....	....	....	21	19 $\frac{1}{2}$	18	16	14	....	....
26	....	....	....	25	22	20	19	....	....	....
28	....	....	32	29	27	25	....	....	....	....
30	....	....	39	35	32	29	....	....	....	....
32	....	....	44	40	36	32	....	....	....	....
34	....	....	51	46	41	36	....	....	....	....
36	....	60	54	50	46	42	....	....	....	....
38	....	68	62	56	50	46	....	....	....	....
40	....	74	68	62	56	....	....	....	....	....
42	....	82	74	66	61	....	....	....	....	....
44	....	87	80	73	66	....	....	....	....	....
46	....	100	93	86	80	....	....	....	....	....
48	....	112	104	96	88	....	....	....	....	....
50	....	123	111	100	92	....	....	....	....	....
52	....	135	124	115	106	....	....	....	....	....
54	....	149	136	125	114	....	....	....	....	....
56	....	154	142	132	120	....	....	....	....	....
58	....	168	155	145	135	....	....	....	....	....
60	....	183	168	155	144	....	....	....	....	....
62	....	190	175	162	....	....	....	....	....	....
64	....	198	185	172	....	....	....	....	....	....
66	....	214	198	185	....	....	....	....	....	....
68	247	230	216	....	....	....	....	....	....	....
70	260	245	230	....	....	....	....	....	....	....
72	284	255	240	....	....	....	....	....	....	....



# COLONIAL STEEL COMPANY

## WEIGHT OF SHEET STEEL

Fractions of an inch	Number of Stubb's Gauge	Decimals of an inch	Weight of One Square Foot	Weight of one Lineal Foot 16 in. Wide
$\frac{1}{2}$	...	.5000	20.520	27.360
...	00	.3800	15.590	20.790
$\frac{3}{8}$	...	.3750	15.390	20.520
...	0	.3400	13.950	18.600
$\frac{5}{16}$	...	.3125	12.820	17.100
...	1	.3000	12.310	16.410
...	2	.2840	11.650	15.530
...	3	.2590	10.630	14.170
$\frac{1}{4}$	...	.2500	10.260	13.680
...	4	.2380	9.760	13.020
...	5	.2200	9.030	12.040
...	6	.2030	8.330	11.110
$\frac{3}{16}$	...	.1875	7.690	10.260
...	7	.1800	7.380	9.850
...	8	.1650	6.770	9.030
$\frac{5}{32}$	...	.1562	6.410	8.550
...	9	.1480	6.070	8.100
...	10	.1340	5.500	7.330
$\frac{1}{8}$	...	.1250	5.130	6.840
...	11	.1200	4.920	6.560
...	12	.1090	4.470	5.960
...	13	.0950	3.900	5.200
$\frac{3}{32}$	...	.0937	3.840	5.130
...	14	.0830	3.400	4.530
...	15	.0720	2.950	3.940
...	16	.0650	2.660	3.560
$\frac{1}{16}$	...	.0625	2.560	3.420
...	17	.0580	2.380	3.170
...	18	.0490	2.010	2.680
...	19	.0420	1.720	2.300
...	20	.0350	1.440	1.920
...	21	.0320	1.310	1.750
$\frac{1}{32}$	...	.0312	1.280	1.710
...	22	.0280	1.150	1.530
...	23	.0250	1.030	1.368
...	24	.0220	.902	1.204
...	25	.0200	.821	1.094
...	26	.0180	.738	.985
...	27	.0160	.656	.875
$\frac{1}{64}$	...	.0156	.640	.855
...	28	.0140	.574	.766
...	29	.0130	.533	.711
...	30	.0120	.493	.657

# COLONIAL STEEL COMPANY

## BIRMINGHAM WIRE GAUGE

In Decimal and Fractional Parts of an Inch, Showing the Weight of a Superficial Foot of Sheet Steel.

Gauge	Part of Inch	Dec. of an Inch	Steel, Square Foot	Gauge	Part of Inch	Dec. of an Inch	Steel, Square Foot
00000	$\frac{1}{32}$	.5000	20.32	11		.1200	4.88
	$\frac{1}{16}$	.4687	19.05	12	$\frac{7}{64}$	.1090	4.44
0000		.4540	18.46	13		.0950	3.86
	$\frac{7}{64}$	.4375	17.78		$\frac{3}{32}$	.0937	3.81
000		.4250	17.28	14		.0830	3.37
	$\frac{1}{8}$	.4062	16.51		$\frac{5}{64}$	.0780	3.18
00		.3800	15.45	15		.0720	2.93
	$\frac{3}{8}$	.3750	15.24	16		.0650	2.64
	$\frac{1}{2}$	.3437	13.97		$\frac{1}{8}$	.0625	2.54
0		.3400	13.82	17		.0580	2.36
	$\frac{5}{16}$	.3125	12.70	18		.0490	1.99
1		.3000	12.20		$\frac{3}{8}$	.0460	1.91
	$\frac{9}{64}$	.2960	12.07	19		.0420	1.71
2		.2840	11.55	20		.0350	1.42
	$\frac{9}{32}$	.2810	11.43	21		.0320	1.30
	$\frac{1}{2}$	.2650	10.80		$\frac{1}{2}$	.0313	1.27
3		.2590	10.53	22		.0280	1.14
	$\frac{1}{4}$	.2500	10.16	23		.0250	1.02
4		.2380	9.68	24		.0220	.89
	$\frac{1}{4}$	.2340	9.53	25		.0200	.81
5		.2200	8.95	26		.0180	.73
	$\frac{7}{32}$	.2187	8.89	27		.0160	.65
6		.2030	8.26		$\frac{1}{8}$	.0156	.64
	$\frac{1}{4}$	.1875	7.62	28		.0140	.57
7		.1800	7.32	29		.0130	.53
	$\frac{1}{4}$	.1710	6.99	30		.0120	.49
8		.1650	6.71	31		.0100	.41
	$\frac{5}{32}$	.1562	6.35	32		.0090	.37
9		.1480	6.09	33		.0080	.33
	$\frac{9}{64}$	.1400	5.72	34		.0070	.28
10		.1340	5.45	35		.0050	.20
	$\frac{1}{8}$	.1250	5.08	36		.0040	.16

# COLONIAL STEEL COMPANY

## TABLE SHOWING THE DIFFERENCE BETWEEN WIRE GAUGES

(According to Haswell.)

No.	Stubb's	Brown & Sharpe's	No.	Stubb's	Brown & Sharpe's
0000	.454	.46000	17	.058	.045250
000	.425	.40964	18	.049	.040300
00	.380	.36480	19	.042	.035890
0	.340	.32486	20	.035	.031960
1	.300	.28930	21	.032	.028460
2	.284	.25763	22	.028	.025347
3	.259	.22942	23	.025	.022571
4	.238	.20431	24	.022	.020100
5	.220	.18194	25	.020	.017900
6	.203	.16202	26	.018	.015940
7	.180	.14428	27	.016	.014195
8	.165	.12849	28	.014	.012641
9	.148	.11443	29	.013	.011257
10	.134	.10189	30	.012	.010025
11	.120	.09074	31	.010	.008928
12	.109	.08080	32	.009	.007950
13	.095	.07196	33	.008	.007080
14	.083	.06408	34	.007	.006300
15	.072	.05706	35	.005	.005610
16	.065	.05082			

## WEIGHT OF ROCKY MOUNTAIN PAT- TERN DRILL STEEL, IN LBS. PER LINEAL FOOT

$\frac{3}{4}$ in	.....1.250	$1\frac{3}{8}$ in	.....4.125
$\frac{7}{8}$ "	.....1.625	$1\frac{1}{2}$ "	.....4.625
1 "	.....2.125	$1\frac{5}{8}$ "	.....5.312
$1\frac{1}{8}$ "	.....2.850	$1\frac{3}{4}$ "	.....6.875
$1\frac{1}{4}$ "	.....3.375	2 "	.....8.125

# COLONIAL STEEL COMPANY

## FRACTIONAL PART OF AN INCH

(Expressed in Decimals.)

1-8 = .12500	1-64 = .015625
1-4 = .25000	3-64 = .046875
3-8 = .37500	5-64 = .078125
1-2 = .50000	7-64 = .109375
5-8 = .62500	9-64 = .140625
3-4 = .75000	11-64 = .171875
7-8 = .87500	13-64 = .203125
1-16 = .06250	15-64 = .234375
3-16 = .18750	17-64 = .265625
5-16 = .31250	19-64 = .296875
7-16 = .43750	21-64 = .328125
9-16 = .56250	23-64 = .359375
11-16 = .68750	25-64 = .390625
13-16 = .81250	27-64 = .421875
15-16 = .93750	29-64 = .453125
1-32 = .03125	31-64 = .484375
3-32 = .09375	33-64 = .515625
5-32 = .15625	35-64 = .546875
7-32 = .21875	37-64 = .578125
9-32 = .28125	39-64 = .609375
11-32 = .34375	41-64 = .640625
13-32 = .40625	43-64 = .671875
15-32 = .46875	45-64 = .703125
17-32 = .53125	47-64 = .734375
19-32 = .59375	49-64 = .765625
21-32 = .65625	51-64 = .796875
23-32 = .71875	53-64 = .828125
25-32 = .78125	55-64 = .859375
27-32 = .84375	57-64 = .890625
29-32 = .90625	59-64 = .921875
31-32 = .96875	61-64 = .953125
	63-64 = .984375

# COLONIAL STEEL COMPANY

## METRIC SYSTEM

### Measures of Weight

(Unit Gramme)

	Grains	Oz. Troy.	Lb. Avor.	Cwt.
Centigramme.....	0.15432	.....	.....	.....
Decigramme.....	1.54323	0.003	.....	.....
Gramme.....	15.43235	0.032	0.002	.....
Decagramme.....	154.32349	0.321	0.022	.....
Hectogramme.....	1543.23488	3.215	0.220	0.009
Kilogramme.....	15432.34880	32.150	2.204	0.011

### Measures of Length

(Unit Metre)

	Inches	Feet	Yards	Miles
Millimetre.....	0.03937	0.003	0.001	.....
Centimetre.....	0.39371	0.032	0.010	.....
Decimetre.....	3.93708	0.328	0.109	.....
Metre.....	39.37079	3.280	1.093	.....
Decimetre.....	393.70790	32.808	10.936	0.006
Hectometre.....	3937.07900	328.089	109.363	0.062
Kilometre.....	39370.79000	3280.899	1093.633	0.621

### Convenient Multiples for Conversion

TO CONVERT

Grains to Grammes.....	multiply by	.065
Ounces to Grammes.....	" "	28.35
Pounds to Grammes.....	" "	453.6
" " Kilogrammes.....	" "	.45
Cwts. to ".....	" "	50.8
Tons " ".....	" "	1016.
Grammes to Grains.....	" "	15.4
" " Ounces.....	" "	0.35
Kilogrammes to Ounces.....	" "	35.3
" " Pounds.....	" "	2.2
" " Cwts.....	" "	.02
" " Tons.....	" "	.001
Inches to Millimetres.....	" "	25.4
" " Centimetres.....	" "	2.54
Feet to Metres.....	" "	.3048
Yards to ".....	" "	.9144
" " Kilometres.....	" "	.0009
Miles " ".....	" "	1.6
Millimetres to Inches.....	" "	.04
Centimetres to ".....	" "	.4
Metres to Feet.....	" "	3.3
" " Yards.....	" "	1.1
Kilometres to Yards.....	" "	1093.6
" " Miles.....	" "	.62

1 Yard = 0.9144 Metre. 1 Sq. Metre = 1.196 Sq. Yard.  
1 Litre = 1.760 Pints or 0.22 Gals.

## TOOL STEEL SUGGESTIONS

### ANNEALING

The Colonial Steel Company's reputation for furnishing annealed steel is well known to its users for its uniformity in all its grades.

The old practice of purchasing unannealed steel and annealing it in the crude methods used in many shops is now almost a thing of the past. As different grades of steel require different treatment in annealing, it is best to order steel annealed by the manufacturer.

Our modern furnaces especially adapted for this purpose give absolute uniformity of annealing and make the steel soft enough to machine with ease.

The outer skin or scale which forms in annealing should always be removed before attempting to harden steel which has been annealed, as otherwise the outside will be soft.

### TEMPER

The word "temper" as used by steel manufacturers represents the amount of carbon which is in the steel. It is usual to call steel "High Carbon" or "Low Carbon," but there are a number of various points of carbon between high and low.

"Tempering" steel is done by hardening the steel harder than is necessary and then reheating it slowly or until it is drawn to proper color (or proper degree in oil by high temperature thermometer) for the work required of the tool.



## TOOL STEEL SUGGESTIONS

### Continued

Owing to the various purposes for which special tools are used, it cannot be expected that a high carbon steel will answer for all purposes, so the steel makers made different tempers to meet the requirements of various tools. For this reason we urge that every order specify for what purpose the steel is to be used; by doing this the steel will give greater satisfaction and the user will get the steelmaker's experience in furnishing steel for the desired purpose.

It will be found very profitable to cut pieces off from the ends of bars and heat them to different temperatures so as to learn at how low a heat the steel will harden, and the lower the heat the better are the results. This will often save annoyance and time.

## HEATING TO FORGE

The introduction of the various alloys into the manufacture of cutting steels during the past several years has severely tried the patience of toolsmiths on account of the density of these steels and the importance of a uniform heating to obtain the desired results.

Some of the alloy steels require an exceptionally low heat, while others require the full yellow heat. The highest heat that a steel will stand is the most desirable to save labor in forging. In all cases the steel should be heated slowly and uniformly, and the degree

## COLONIAL STEEL COMPANY

### TOOL STEEL SUGGESTIONS Continued

of heat given should be regulated according to the nature of the steel. It should be worked quickly, and in no case should it be worked below the forging heat.

Take time enough to insure that the steel is heated thoroughly, but if allowed to soak after reaching the forging heat it is a disastrous practice, as it will invariably result in breakage when the tool is hardened. Heat Slowly and Uniformly.

### HEATING TO HARDEN

Owing to the various tempers in steel we at times are asked these questions: "What is the best way to heat steel?" "At what degree of heat should it be hardened?" "What method of cooling gives the best results?" In the past few years the improvements made in Gas and Oil Muffle Furnaces with Pyrometer attachments have simplified the method of hardening to some extent, where the operator is thoroughly acquainted with controlling the air, gas or oil so that complete combustion exists. Where too much air is used decarbonization takes place, resulting in the surface of the steel not being hardened. The same condition is found where too much oil or gas is used; the surface of the steel takes on the excess oil or gas which the water does not remove when quenched in bath. Lead is used in many places with excellent results. When using these methods tools should always be heated to at



## TOOL STEEL SUGGESTIONS

### Continued

least 800 degrees F. before immersing in the hot bath. Sudden and uneven and ununiform heating are the cause of many tools cracking, as the expansion of the outer parts, by being quickly heated, causes the outside to be pulled away from body of the tool.

When the forge is used, care should be taken to have sufficient body of fuel between the piece to be hardened and the tuyere iron, as where small jets of air strike the tool, soft spots are the results. The piece to be hardened should be covered up with plenty of fuel, so that the part required to be softened is not exposed to the air. Care should be taken that corners and fine cutting edges are not heated faster than body of tool.

*Uniform heat is the most important.*

*Harden at as low a heat as is possible. High heat causes irregular grain and results in breakage.*

### HARDENING

After pieces are uniformly heated, they should be quickly immersed in brine, oil or water, according to nature of tool. Plenty of water should be used so that uniformity of cooling takes place, as this is as important as heating. Uneven hardening is caused by not having the bath large enough. For hardening large pieces, a running stream playing against face to be hardened is important, as steam pockets are very often formed which result in soft spots.

# COLONIAL STEEL COMPANY

## TEMPER TESTS FOR TOOL STEELS

	Deg. Fahr.	Deg. Cent.
1. Light Straw.....	430	222
2. Straw.....	450	232
3. Dark Straw.....	470	244
4. Light Brown.....	490	255
5. Dark Brown.....	510	265
6. Light Purple.....	520	271
7. Dark Purple.....	530	277
8. Bright Blue.....	550	288
9. Blue.....	560	293
10. Dark Blue.....	600	316
11. Bright Red in the dark...	752	400
12. Red in twilight.....	884	474
13. Red, visible by day.....	1077	581

OCTOBER 1, 1910



